

**Post Sanction Situation  
of  
Oil & Gas Industry  
in  
IRAN**



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**January 2016**

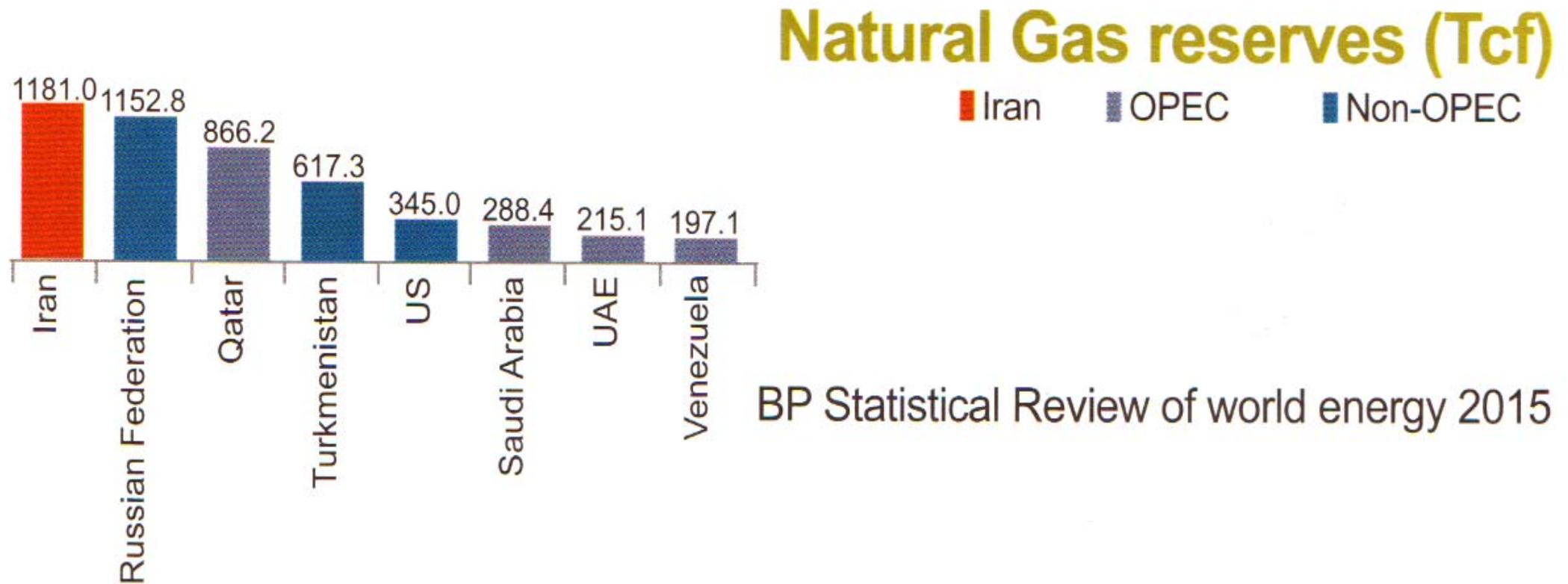
# Mineral Reservoirs

- Iran with roughly **1% of the world's population** holds **more than 7% of the world's total mineral reserves**
- Ranks among **15 top** major mineral and metals rich countries
- There are **68 types** of minerals
- **37 billion tones** of proven reserves
- More than **57 billion tones** of potential reserves
- Worth **\$800 billion** in 2014

# Mineral Reservoirs World Ranking

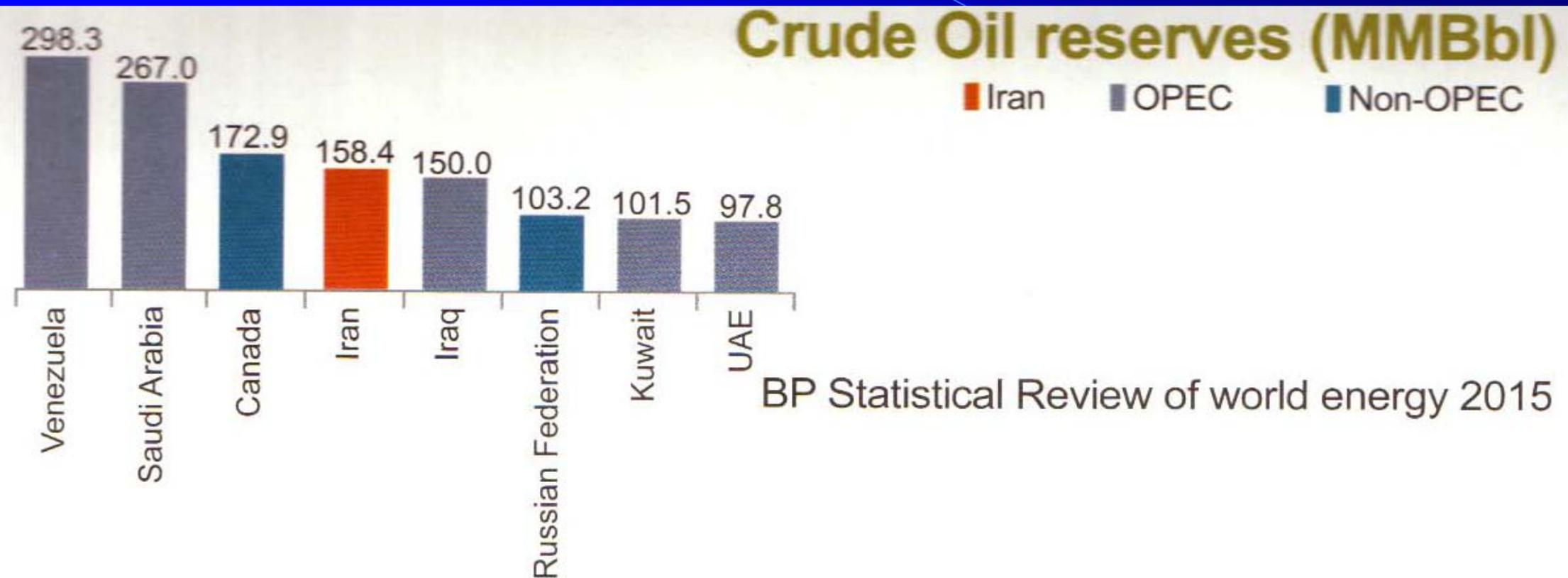
- **ZINK** 14<sup>th</sup> largest
- **COPPER** 9<sup>th</sup> largest
- **IRON** 12<sup>th</sup> largest
- **MANGANESE** 12<sup>th</sup> largest
- **LEAD** 11<sup>th</sup> largest

# Proved Oil & Gas Reservoirs



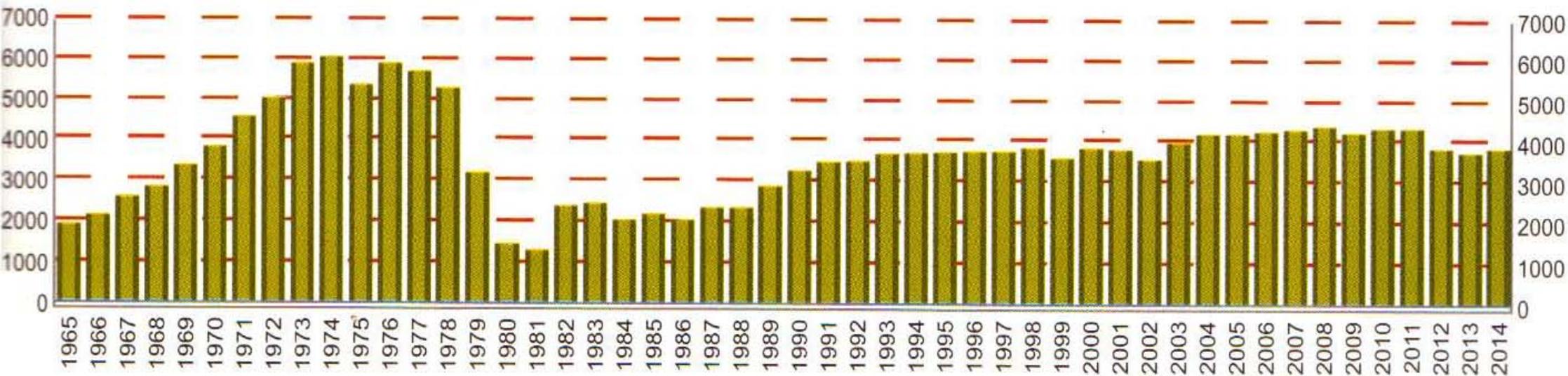
BP Statistical Review of world energy 2015

# Proved Oil & Gas Reservoirs



# Oil Production

## Iran Oil Production History (MBbl/D) 1965-2014



BP Statistical Review of world energy 2015

# Existing Infra structure

- Oil & Products Pilelines **14,000 KM**
- Gas Pipelines :
  - High Pressure **36,500 KM**
  - Town Networks **277,500 KM**
- Power Production : **75,000 MW/D**
- Power Grid:
  - High Voltage **130,000 KM**
  - Low Voltage **614,000 KM**
- Railways **13000 KM**
- Highways, Freeways, Roads **2500, 15000, 25000**

# Iran Population Statics

➤ Population	78,500,000
➤ Active (15-65) :	70%
➤ University Graduates :	6,000,000
➤ :Male /Female	38.8 / 39.6
➤ colleges & universities:	2,800
➤ educatee:	4,800,000
➤ Job Opportunities needed on 2020	29,000,000

# Iran Daily Energy Consumption

➤ Natural Gas:	500- 626 MM CF
➤ Gasoline:	76-80 MM liters
➤ Gas Oil :	90-100 MM liters
➤ Fuel Oil:	50- 60 MM liters
➤ LPG:	7M tons
➤ CNG:	66MM CF
➤ Power:	75,000 MW
➤ Petrochemical Products	5,000Tons

# Daily Products Balance

- Petrochemical Plants Capacity **13,000 Tons**
- Petrochemical Plants Utilization **74%**
- Petrochemicals Export **4,000 Tons**
- Refining Capacity **1,700,000 bbl**
- Utilization **110%**
- Products Export **up to 65,000 Tons**

# Iranian Petroleum Contracts ( IPC )

- **There are 3 categories of contracts:**
  - **Exploration, and If commercial, it's development & Production**
  - **Development of Green Field and implementing them according to the measures & Duration of the Contract**
  - **Improvement of operation or recovery factor increase (EOR / IOR) in fields under operation**

# IPC Structure

- **The structure is approved by Board of Ministers and is strongly & legally supported**
- **It is in conformance with the Resistive Economy Regulations**
- **It has been approved by the PARLIMENT**
- **Project Execution is seen as Joint Venture**
- **The proprietary of the government of I. R. Iran over natural Oil & Gas Reservoirs are preserved**

# IPC Incentives

- **The following principles rule over all contracts on the basis of Ministers Board Approval**
  - Oil Ministry is authorized to consider a maximum term of 20 years for each contract starting from development operation expandable +5 years in some projects
  - The reimbursement of all direct and indirect costs, financial costs, fee payment and production costs via a sectorial allocation (Max. 50%) of the field products and / or earnings from contraction the basis of product day sales price

## **IPC Incentives Ct'd**

- **If Oil Ministry Decide to reduce the production rate or terminate the field subject of the contract, they should not influence the repayment of the relevant costs and fees to the contractor**
- **In case of produced oil/gas is consumed in domestic market, NIOC can reimburse the costs & fees from other fields**
- **The Fee is defined as a function of production rate, risk factors & international and regional Oil / Gas prices**

## **IPC Incentives Ct'd**

- **The costs of explorative and/or appraisal operations will be defined and determined on the basis of minimum exploration and/or appraisal liabilities in the process of appointing counterparty**
- **The operational costs and indirect costs of production are measured and reimbursed as current costs since the start of the production. Moreover, the payment of the relevant free to the contractor will start according to the provisions of the contract from the same point .**

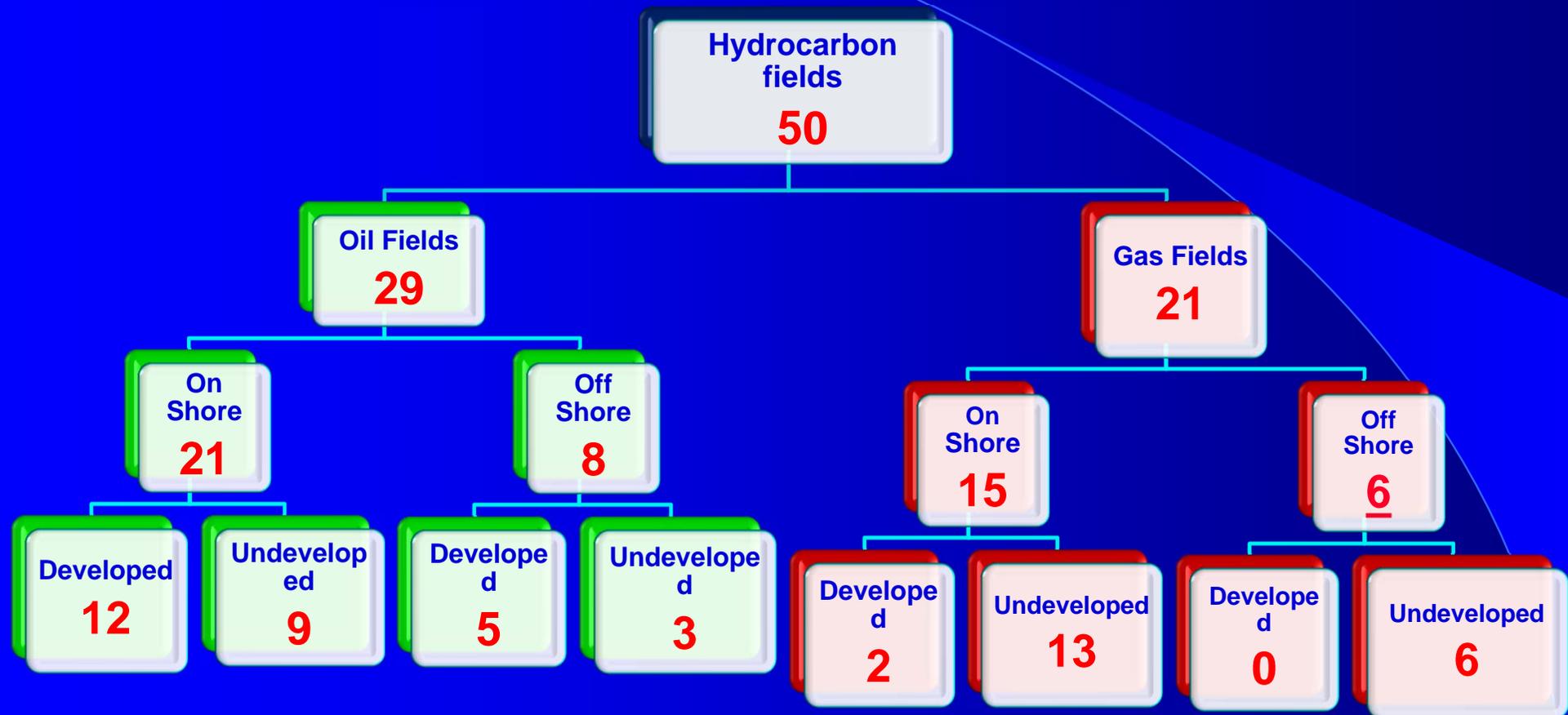
# Cost reimbursement methodology

- The reimbursement will be measured based on the course contained in the contract till the field / reservoir reaches initial / excess production level in Green / Brown fields.
- indirect costs of production are measured and reimbursed as current costs since the start of production
- All payment are done or earning from the products of reservoir / field, subject of contract on the day price or cash basis in due course

# Projects Priority

- **NIOC introduces**
  - 50 hydrocarbon fields and
  - 18 exploration blocks for development.
- **Priorities for development are**
  - Common fields,
  - high potential green fields and
  - renewal of the high productive brown fields

# UP Stream Projects Overview



# Undeveloped Khami Gas Reservoirs

Field Name	Formation Name	Gas in Place	Estimated Gas Production	Estimated Condensate Production
		TCF	MMSCF/D	MBbl/D
QALEH-Nar	Bangestan	1.1	80	9
Kuh-e-Asmari	Jurassic	0.95	30	0.180
Ahwaz	Fahlian	2.3	100	31
Karanj	Khami	1	60	2.6
Pazanan	Khami	3	200	10
Bibi-Hakimeh	Khami	2.3	135	9.7
Binak	Khami	1.2	50	6.8
Milatun	Sormeh	1.2	55	4.8
<b>Total</b>		<b>13</b>	<b>710</b>	<b>74</b>

**Ahwaz**  
Khami 1978  
2300 BSCF GIP  
100 MMScf/d  
308 Bbl/MMscf  
0 ppm H2S

**Qaleh nar**  
Bangestan 1975  
1099 BSCF GIP  
80 MMScf/d  
113 Bbl/MMscf  
21500 ppm H2S

**Kuh e Asmari**  
Jurassic 2007  
943 BSCF GIP  
30 MMScf/d  
6 Bbl/MMscf  
109400 ppm H2S

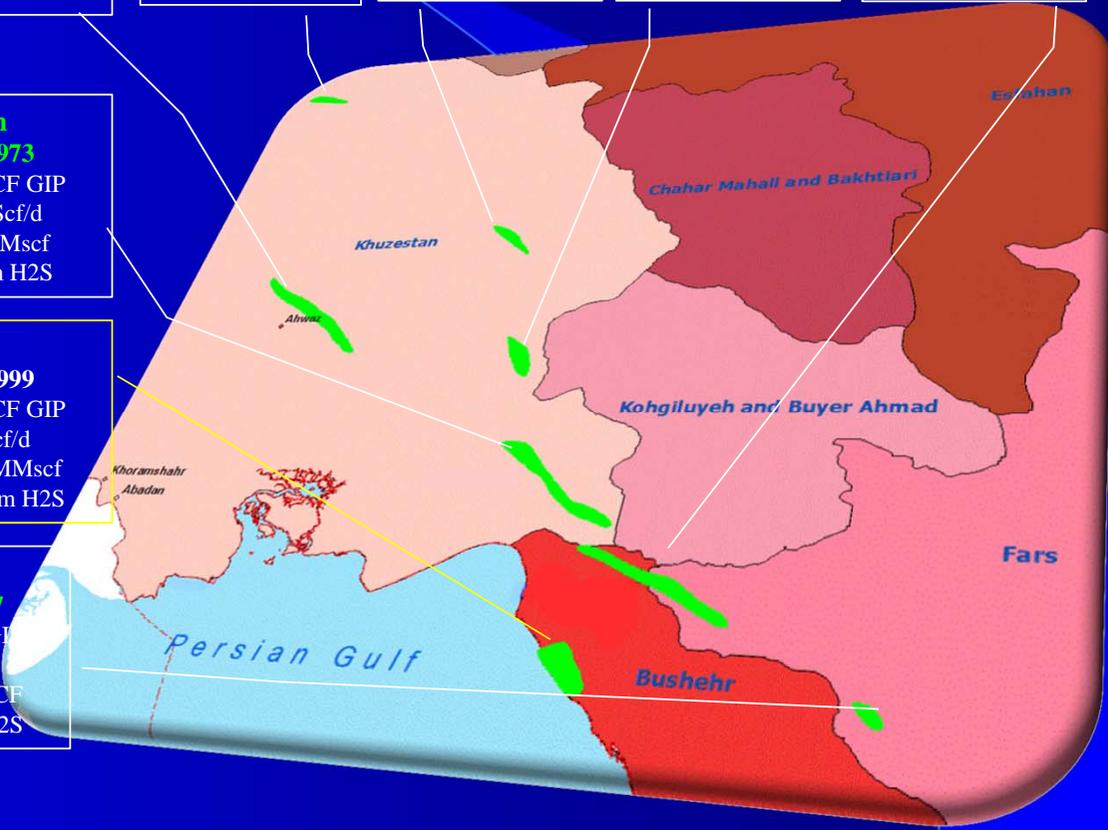
**Karanj**  
Khami 1988  
1006 BSCF GIP  
60 MMScf/d  
44 Bbl/MMscf  
53600 ppm H2S

**Bibi hakimeh**  
Khami 1997  
2290 BSCF GIP  
135 MMScf/d  
72 Bbl/MMscf  
25200 ppm H2S

**Pazanan**  
Khami 1973  
3036 BSCF GIP  
200 MMScf/d  
52 Bbl/MMscf  
8800 ppm H2S

**Binak**  
Khami 1999  
1182 BSCF GIP  
50 MMScf/d  
137 Bbl/MMscf  
34600 ppm H2S

**Milatun**  
Surmeh 1977  
1240 BSCF GIP  
55 MMScf/d  
88 Bbl/MMscf  
40000 ppm H2S



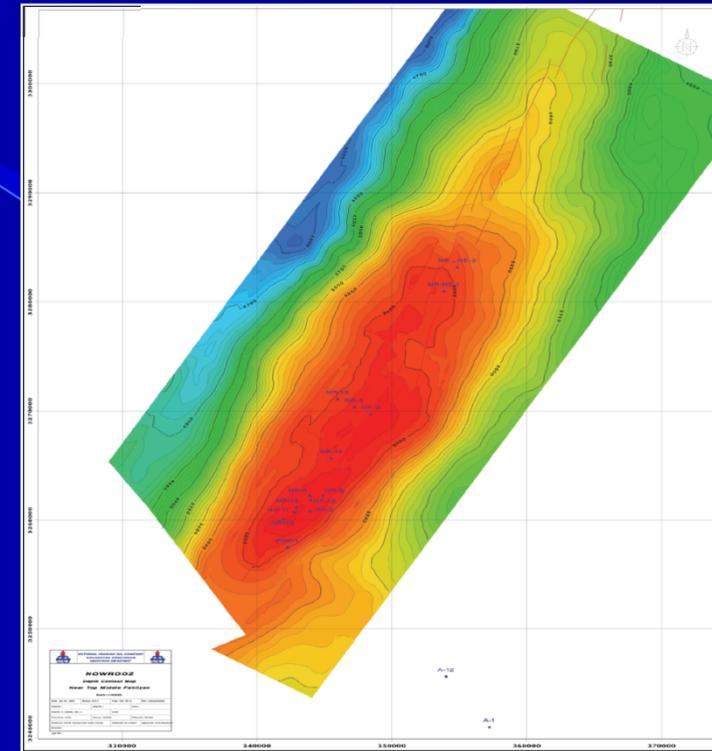
## Location of Nowrooz field



Nowrooz oil field is located about 50 Km. north of Soroosh oil field in Persian Gulf near Abuzar field.

Disc. year	Prod. init. year	Dim. kmxkm	Seismic Data	No. Wells	Formation	API Degrees
1966	1971	20x5	3D	36 (22 Prod.)	Burgan Khalij Shoeyba Yamama	20.5 18 20 30

# Nowrooz Field General specifications



- Redevelopment of the field has been done by Shell in 2000, with the aim of producing 90 MSTB/D under natural depletion mechanism through 17 horizontal production wells.
- It is suggested to update the existing studies with the aim of determining optimum production mechanism and possibility of using EOR methods.

Field	STOIP	Cumulative Production (Up to Now)	Current Production	Total Estimated Production
	<b>MMBbl</b>	<b>MMBbl</b>	<b>MBbl/d</b>	<b>MBbl/d</b>
<b>Nowrooz</b>	<b>4201</b>	<b>297</b>	<b>28</b>	<b>To be proposed by contractor</b>

# Down Stream Projects

- **Expansion & Upgrading of Existing Refineries**
- **Construction of New Refineries**
- **Pipeline & Terminal Projects**
- **Petrochemical Projects**

# Bottom Upgrading Projects

- Refiners must reduce fuel oil to < 10%
- Present Fuel Production is around 23-27%:

➤ Abadan	<b>120,000 BPSD</b>	<b>33%</b>	<b>→</b>	<b>7%</b>
➤ Isfahan	<b>72,000 BPSD</b>	<b>23%</b>	<b>→</b>	<b>5%</b>
➤ Bandar Abbas	<b>86,000 BPSD</b>	<b>29%</b>	<b>→</b>	<b>8%</b>
➤ Tabriz	<b>25,000 BPSD</b>	<b>23%</b>	<b>→</b>	<b>6%</b>
➤ Tehran	<b>50,000 BPSD</b>	<b>23%</b>	<b>→</b>	<b>7%</b>

# Siraf Refinery Park

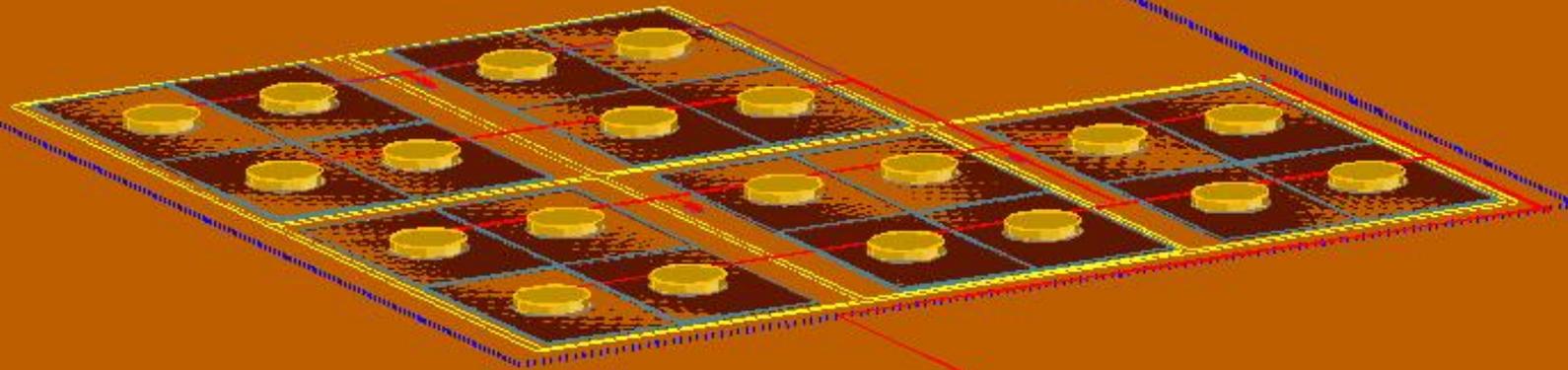
- **Capacity**      **8 x 60,000 BPSD Gas Condensate**
- **Utility Units: Common on NIORDC Supervision**
- **discount on feed Price: 10%**
- **LOCATION :**    **Near Asaluye Area**
- **Products Export :**    **Possible**

# Pipeline Projects

- Bandar Abbas – Rey product line
  - **1370 KM**                      **\$300 MM**
- Abadan Rey product line
  - **920 KM**                        **\$400 MM**
- High Pressure Gas line
  - **6000 KM**                      **\$10 MMM**

# Jask Terminal Phase-1 (SPM)

STORAGE CAPACITY: 10 MM BBLs



CASE 1

CAPACITY OF EACH SPM: 1.5 MM bpsd

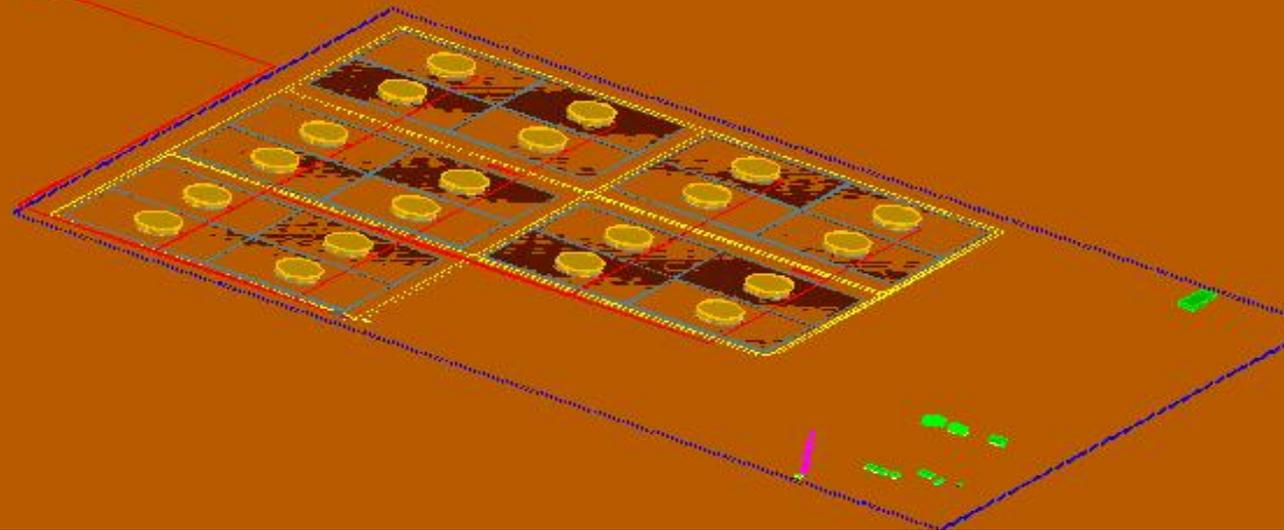


# Jask Terminal Phase-2 (Jetties)

CASE 2

**Capital Cost**

**\$500 MM**



# Petrochemical Projects

- **103 Projects** **\$60,000 MM**
- **Ongoing** **73 projects**
  - **71.1MM Tons/Y** **\$46 MMM**
- **New Oportunities** **30 projects**
  - **37.1 MM Tons/Y** **\$38 MMM**



**Thanks  
For  
Your Attention**